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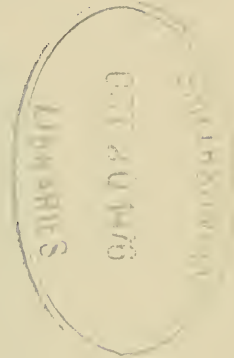
12 October 1976

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

OCCURRENCE OF *APANTHURA MAGNIFICA*
MENZIES AND FRANKENBERG, 1966 (ISOPODA:
ANTHURIDAE) FROM THE WEST COAST OF
FLORIDA, WITH A KEY TO THE SPECIES OF
APANTHURA STEBBING, 1900

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Bethnic samples from Dickerson Bay, Wakulla County, Florida, during February and May, 1975, contained many specimens of an anthurid isopod. The females conformed to the description of female *Apanthura magnifica* Menzies and Frankenberg, 1966, except that they had a setal comb on the distal article of the mandibular palp. Also, two forms of anthurid males were found: The first conformed to the male *A. magnifica* illustrated by Menzies and Frankenberg (1966) except for having chromatophores and a greater number of flagellar articles on the first antennae; the second form had elongate first antennae, but without setae, and lacked chromatophores and faceted eyes.

An examination of the female holotype *A. magnifica* (USNM 111073) demonstrated that the species does have a setal comb on the mandibular palp. No allotype was designated and the location of the male illustrated by Menzies and Frankenberg is not known. Therefore, in this paper, we redescribe a female *A. magnifica* to include the correct configuration of the mandibular palp, and describe immature and mature males from Florida. Also, we have extended the range of *A. magnifica* from Georgia to northwestern Florida, and have prepared a key to the species of *Apanthura* Stebbing, 1900.

ANTHURIDAE

Diagnosis: Isopods with tubular, elongate bodies, over 6 times as long as wide. Pleon with 6 or fewer pleonites and a telson. Uropods often arched over telson. Statocysts frequently present in telson. Mouthparts adapted for chewing. First pair of pereopods subchelate.

Genus *Apanthura* Stebbing, 1900

Type-species: *Apanthura sandalensis* Stebbing, 1900.

Diagnosis: Eyes usually present, absent in species from deep water. Pereonites not pitted. Pleon with sutures distinct. Telson not indurated, rather thin dorsally, smooth and concave. Antennae 1 (the upper and outer pair) with flagella of 1 joint, or obscurely 2-3 jointed; occasionally elongate and brushlike in males. Antennae 2 with flagella rudimentary. Mandible with third palpal joint shorter than or subequal to first, sometimes with a comb of setae, sometimes with only an apical tuft. Maxilliped 5-jointed. Pereopod 1 usually with tooth on palm near base, unguis typically long. Pereopods 2 and 3 with sixth joint somewhat ovate. Pereopods 4 through 7 with fifth joint underriding sixth. Pleopod 1 not indurated. Uropods not indurated, expods folding over telson. Oostegites 4 pairs (Barnard, 1925).

Apanthura magnifica Menzies and Frankenberg, 1966

Diagnosis: Female (Fig. 1). Unpigmented, color pale pink to yellow. Eyes small, simple, black; separated dorsally by more than 5 eye lengths. Cephalon longer than wide; rostral projection as long as anterolateral margins. First antenna with peduncle of 4 articles and flagellum of 2 articles. Peduncle of antenna 2 with 4 articles visible dorsally; flagellum with 4 articles, the last 3 minute. Maxilliped 5-jointed. Mandibular palp consisting of 3 articles, second longest; article 3 with apical setal comb. Pereonite 1 about twice as long as cephalon, slightly longer than pereonites 2 or 3. Pereonites 2 and 3 subequal, slightly shorter than pereonites 4, 5 or 6. Pereonite 7 the shortest, about 0.8 times as long as pereonite 1. Pleon with 6 pleonites, about as long as pereonite 3. Pleonites 1, 2 and 3 distinctly separated dorsally, subequal in length. Pleonites 4 and 5 fused middorsally, fifth twice as long as fourth. Pleonite 6 with middorsal incision on posterior margin. Telson ovate. Uropod with endopod nearly twice as long as broad, not narrower than peduncle, smooth along inner margin and extending beyond distal end of telson. Expod of uropod broadly ovate; apex notched. Pereopod 1 subchelate, with palmar tooth. Pereopods 4 through 7 with fifth joint underriding sixth; propodus and dactylus minutely toothed along interior margins.

Mature male (Fig. 2A, C, D): Chromatophores present. Eyes large, separated dorsally by less than one eye width, black, with facets. Cephalon slightly longer than wide, with rostral projection. Antenna 1 with peduncle of 4 articles and an elongate, multiarticulate, heavily

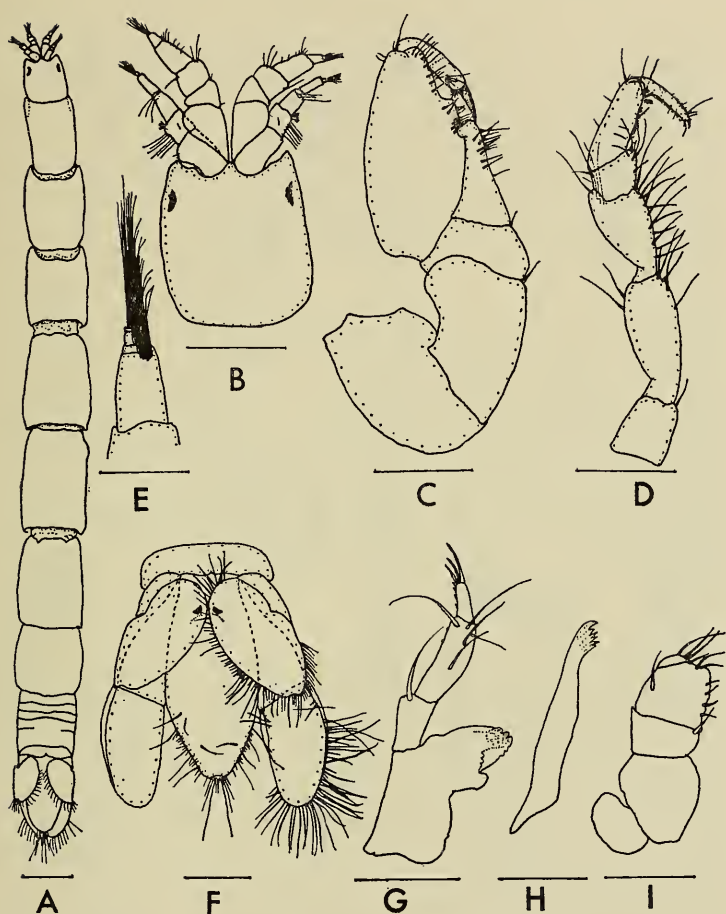


FIG. 1. Female *Apanthura magna* (1 = 15.1 mm; w = 1.4 mm): A, Dorsal view; B, Cephalon and antennae I and II; C, Pereopod 1; D, Pereopod 7; E, Flagellum antenna II; F, Telson and uropods; G, Mandible with palp; H, Maxilla; I, Maxilliped. Scale = 1 mm in A; 0.5 mm in B, C, D, and F; 0.1 mm in E, G, H, and I.

setose flagellum extending beyond posterior end of second pereonite. Antenna 2 as in female. Pereonite 1 about 1.5 times as long as cephalon, longer than remaining pereonites. Pereonites 2, 4, 5 and 6 subequal in length, slightly longer than pereonite 3. Pereonite 7 shortest, about 0.6 times as long as pereonite 1. Pleon and telson

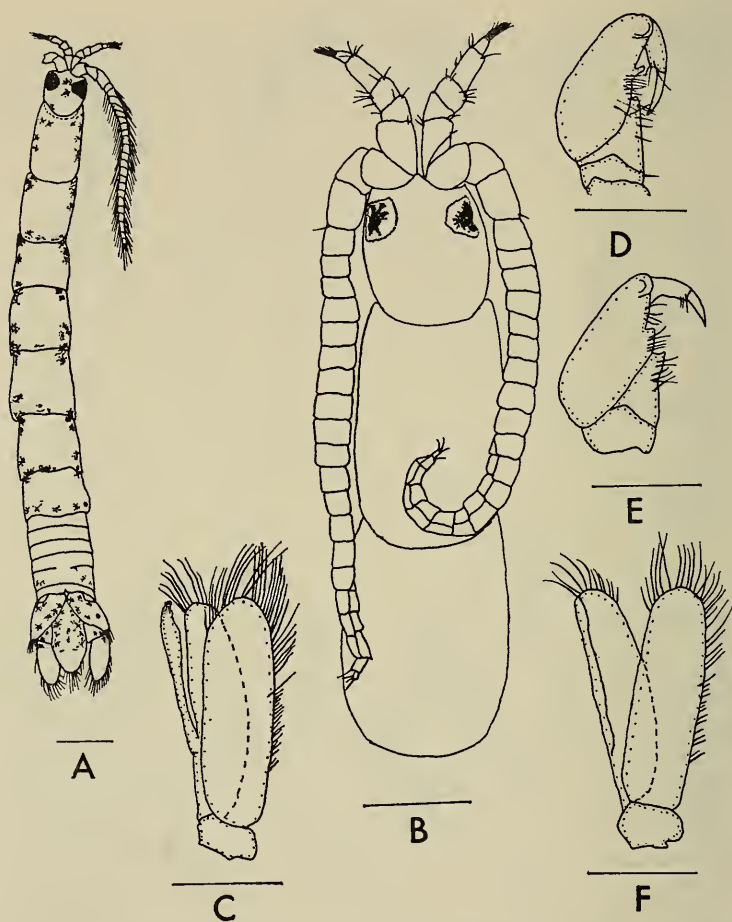


FIG. 2. Male *Apanthura magnifica*: A, Dorsal view, mature specimen (l = 10.8 mm; w = 1.1 mm); B, Cephalon and pereonites 1 and 2, immature specimen; C, Pleopod 2, mature; D, Distal articles of pereopod 1, mature; E, Distal articles of pereopod 1, immature; F, Pleopod 2, immature. Scale = 1 mm in A, 0.5 mm in B-F.

as in female. Appendix masculina slightly longer than endopod of pleopod 2. Pereopods as in female.

Four mature males were examined and all had chromatophores, faceted eyes, and a free appendix masculina. The number of flagellar

articles in antenna 1 ranged from 23 to 27. Size ranged from 8.0 to 10.8 mm in length and 0.75 to 1.1 mm in width.

Immature male (Fig. 2B, E, F): Eleven immature males were examined. They lacked chromatophores and had non-faceted eyes. The flagellum of antenna 1 was multiarticulate, but generally had fewer articles (16 to 23) than mature males, and lacked setation. The appendix masculina was ensheathed within the endopod of pleopod 2. Size ranged from 8.7 to 13.0 mm in length and 0.8 to 1.2 mm in width.

Distribution: Off Georgia, 30°48'05"N, 80°00'W, type-locality; Tampa Bay, Florida; Egmont Key, Florida; Cedar Key, Florida; Dickerson Bay, Florida; Bald Point, Florida.

Material examined: Georgia, 154 m, 12 September 1963, holotype female, USNM 111073; Bald Point, Florida, low tide, 1 December 1955, 3 females, 1 immature male, USNM 208664; Cedar Key, Florida, 3.3 m, 19 January 1957, 1 mature male, USNM 215990; Cedar Key, Florida, 13 April 1957, 1 immature male, USNM 215990; west of Egmont Key, Florida, Gulf of Mexico, 4 m, 15 April 1970, 1 female, USNM 290578; Tampa Bay, Florida, October–December 1971, 1 mature male, 1 immature male, 27 females; Dickerson Bay, Florida, 2 to 5 m, 5 February 1975, 9 immature males, 19 females; Dickerson Bay, Florida, 2 to 5 m, 22 May 1975, 2 mature males, 1 immature male, 97 females.

DISCUSSION

Several discrepancies were noted between our material and the original description of the species. First, examination of the holotype female revealed the presence of a setal comb on the mandibular palp which Menzies and Frankenberg stated and illustrated as absent. This absence was used by them as a character to distinguish *A. magna* from *Apanthura senegalensis* Barnard, 1925. This error could be due to the fact that the palp was viewed from the wrong side and the setal comb was mistaken for a single seta. Secondly, all mature males examined by us had chromatophores. Menzies and Frankenberg illustrated a mature male without any chromatophores. Possibly the individuals found at greater depths (17–154 m) by them are not pigmented, while those found at shallower depths (2–5 m) have chromatophores. Thirdly, Menzies and Frankenberg called the long brushlike antennae of the male, the second antennae. Barnard (1925) stated that: "The upper or first antennae are remarkable for the secondary modification displayed in the males of certain species" of anthurids. We agree with Barnard and opine that it is the first antennae of the male which are long and brushlike. The basal article of the first antenna fits into a groove in the basal segment of the second antenna. This grooved segment may be enlarged so that it appears that the second antenna is inserted above the first antenna (Fig. 2B). The peduncle and flagellum of antenna 2 are identical in both sexes of

A. magnifica. Lastly, Menzies and Frankenberg illustrated a mature male with many fewer flagellar articles in antenna 1 (10–13) than we have found (23–27), although the lengths of the antennae are similar, indicating that the Georgia males have larger, fewer articles than Florida males.

It appears that upon reaching sexual maturity, males develop chromatophores and faceted eyes, and add several flagellar articles to the first antennae, which also become heavily setose. We have also found two kinds of males among the types of *A. senegalensis*. One specimen had large, faceted eyes and a heavily setose flagellum of antenna 1 with 11 articles. Another specimen had smaller eyes and a non-setose flagellum of antenna 1 with 9 articles. We speculate that these changes come about through several molts and suggest that *Apanthura* may be protogynous, as is known to be the case in *Cyathura*. Barnard (1925) stated that perhaps two molts were necessary for the first antennae of anthurid males to develop this brushlike appearance, although the exact number has never been definitely determined.

We have compared the type of *A. magnifica* with the types of *Apanthura sandalensis* Stebbing, 1900, *A. senegalensis*, *Apanthura signata* Menzies and Glynn, 1968 and *Apanthura significata* Paul and Menzies, 1971 and have prepared an artificial key to all species in the genus. It is possible that two genera are represented here, since *Apanthura californiensis* Schultz, 1964 and *Apanthura inornata* Miller and Menzies, 1952 are illustrated showing the fourth and fifth pleonites free, while they are fused dorsally in *A. magnifica*, *A. significata* and *A. signata*. We could not conclusively ascertain the configuration of pleonite sutures in the old, preserved specimens of *A. sandalensis* and *A. senegalensis* and are not prepared at this time to separate the genus into two genera until fresh material of all species is examined.

ARTIFICIAL KEY TO THE SPECIES OF APANTHURA STEBBING, 1900

1. Without eyes 2
 With eyes 3
2. Third article of mandibular palp shorter than first
 *A. africana* Barnard, 1914
 Third article of mandibular palp equal to first
 *A. coppingeri* Barnard, 1925
3. Female without chromatophores 4
 Female with chromatophores well-developed
 *A. signata* Menzies and Glynn, 1968
4. Endopod of uropod nearly as broad as long; subcircular
 *A. xenocheir* Stebbing, 1910
 Endopod of uropod nearly twice as long as broad 5
5. Cephalon longer than first pereonite
 *A. significata* Paul and Menzies, 1971
 Cephalon not longer than first pereonite 6

6. Cephalon subequal in length to first pereonite
 *A. senegalensis* Barnard, 1925
 Cephalon shorter than pereonite 1 7
7. Uropods and telson with minutely serrate margins
 *A. californiensis* Schultz, 1964
 Uropods and telson without serrate margins 8
8. Pereonite 7 as long as pleonites 1 to 6 combined (excluding telson)
 *A. magnifica* Menzies and Frankenberg, 1966
 Pereonite 7 shorter than pleonites 1 to 6 combined 9
9. Pleotelson rounded distally and crenulate
 *A. sandalensis* Stebbing, 1900
 Pleotelson truncate distally *A. inornata* Miller and Menzies, 1952

ACKNOWLEDGMENTS

We thank T. E. Bowman of the United States National Museum for the loan of specimens in that collection and critically reading the manuscript; the Universitetets Zoologiske Museum, Copenhagen and the British Museum of Natural History, London for the loan of type-material; Jack Rudloe (Gulf Specimen Company) for his help in collecting in Dickerson Bay, Florida; E. D. Estevez for providing material from Tampa Bay, Florida; and R. J. Menzies for his help and encouragement. This study was supported in part by a United States Department of Agriculture Cooperative State Research Grant No. 216-15-03.

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